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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/578,962

05/25/2000

Takashi Iwasaki

6920/OH207

7076

7590

05/20/2004

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New York, NY 10022

EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/578,962

Applicant(s)

IWASAKI ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 5, 6, 8-10, 12, 14, 15, 18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 6, 8-10, 12, 14, 15, 18 and 20-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. **Claims 20, 22, 23, 24** are objected to under 37 CFR 1.75 as being substantial duplicates of **claims 14, 6, 15, and 8** respectively. (Examiner has interpreted claim 24 as depending from claim 22. Refer to the rejection under 35 U.S.C. 112 second paragraph below.) When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
2. **Claim 24** also is objected to for the following: being dependent on cancelled claim 16. Examiner has interpreted the claim as depending from **claim 22**. Correction is required.

### *Claim Rejections - 35 USC § 103*

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. **Claims 1, 5, 9, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Slutter et al. (5,192,981)** in evidence of **Grossman (3,865,490)** in view of **Tondello et al. (4,254,335)** and **Mächler (4,709,989)**.

As for **claims 1, 5, 9, and 12**, Slutter discloses the following: a czerny-turner type monochromator (col. 2, line 44; col. 4, line 51) that comprises a housing comprising a base plate; a diffraction grating; a collimating concave mirror; a focusing spherical mirror; two slits sections for input and output; the mirrors are made of a glass material such as BK7 (Fig. 1; col. 3, lines 20-67; col. 4, lines 1-67; col. 5, lines 1-20). Slutter's spherical focusing mirror (80 of Fig. 1) implies a concave structure. Grossman in a filter spectrograph discloses that czerny-turner

monochromator's comprise two concave mirrors (Fig. 1). Slutter's design suggests fixed mounting to the base plate (Figs. 1, 2, 3, and 6). However, Tondello teaches in a spectrograph-monochromator system to fix all the optical components to the same base plate for easy access to the components and for overall small size (col. 3, lines 35-50). It would be obvious to one skilled in the art at the time the invention was made to have the monochromator comprise a substrate whereas all the optical components are fixed in order to provide compactness and easy access to the components. As for the base plate it is aluminum, a second material different from the mirror material (col. 3, lines 25-30). As for the mirrors having thermal expansion coefficients similar to the base plate, Slutter, Grossman, and Tondello are silent. However, Mächler in a chassis for optical instruments teaches that housings of optical components should consist of a material such as ceramic that has the same coefficient of thermal expansion as the glass components to prevent mechanical stresses (col. 1, lines 9-30; col. 2, lines 45-60). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the mirrors of one material have their coefficient of thermal expansion be approximately the same of the base plate of a second material in order to prevent mechanical stresses in the system.

5. **Claims 14, 18, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Slutter et al. (5,192,981)** in evidence of **Grossman (3,865,490)** in view of **Tondello et al. (4,254,335)** and **Mächler (4,709,989)** further in view of **Ito (4,559,277)**.

As for **claim 14**, Slutter, Grossman, Tondello, and Mächler disclose everything as above (see **claim 12** above). However, they are silent concerning the substrate being of aluminum and ceramic. However, Ito in a ceramic and aluminum alloy composite teaches that his composite of aluminum and ceramic has no defects of previous composites and that a composite of aluminum

and ceramic would eliminate defects of aluminum such as having poor heat resistance and heat insulating ability (col. 1, lines 5-55). Therefore, it would be obvious to have the housing that comprises a base plate to be of an aluminum and ceramic composite rather than aluminum, for the composite would have increased heat resisting and insulating properties.

As for **claims 18 and 20**, please refer to the rejections of **claims 14, 12, and 1** above.

6. **Claims 6, 10, 15, 22, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mori et al. (6,166,805)** in view of **Slutter et al. (5,192,981)** and **Tondello et al. (4,254,335)** and further in view of **Mächler (4,709,989)**

As for **claims 6, 10, 15, 22 and 23**, Mori in a double pass monochromator discloses the following: a monochromator (col. 9, lines 23-24) comprising: a single slit as exit and entrance sections; a concave mirror; a diffraction grating (Fig. 4). However, as a single concave mirror for both collimation and condensing, it is not in the Fig. 4 embodiment, he states that conventionally one concave mirror may be used for collimating and condensing (Fig. 15; col. 1, lines 15-20). Therefore, it would be obvious to one skilled in the art to have the Figure 4 embodiment comprise a single concave mirror for a single concave mirror performs as satisfactorily as two mirrors and also minimizes the number of components and therefore cost.

As for a substrate to mount the components, Mori is silent. However, Slutter discloses that monochromators generally have housings for mounting components that comprises a base plate (col. 3, lines 19-45). And Tondello teaches in a spectrograph-monochromator system to fix all the optical components to the same base plate for easy access to the components and for overall small size (col. 3, lines 35-50). It would be obvious to one skilled in the art at the time the invention was made to have the monochromator comprise a substrate whereas all the optical

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components are fixed in order to provide compactness and easy access to the components and to have a housing comprising a base plate for monochromators generally comprise housings for protection against the environment.

As for the mirror having a thermal expansion coefficient similar to the base plate, Mori, Slutter, and Tondello are silent. However, Mächler in a chassis for optical instruments teaches that housings of optical components should consist of a material such as ceramic that has the same coefficient of thermal expansion as the glass components to prevent mechanical stresses (col. 1, lines 9-30; col. 2, lines 45-60). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the mirror of one material have its coefficient of thermal expansion be approximately the same as the base plate of a second material in order to prevent mechanical stresses in the system.

As for the mirror being of a glass material, Mori is silent, but Slutter teaches that mirrors of a monochromator comprise BK7, a glass material; that is known in the industry (col. 4, lines 15-20). Therefore, it would be obvious to one skilled in the art that the mirror comprises a glass material, for mirrors of a monochromator are made of BK7, a glass material, known in the industry.

7. **Claims 8, 21, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mori et al. (6,166,805)** in view of **Slutter et al. (5,192,981)** and **Tondello et al. (4,254,335)** and further in view of **Mächler (4,709,989)** further in view of **Ito (4,559,277)**.

As for **claims 8 and 24**, Mori, Slutter, Tondello, and Mächler, see **claims 6 and 22** above. However, they are silent concerning the base plate comprising an aluminum-ceramic composite. Ito in a ceramic and aluminum alloy composite teaches that his composite of

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aluminum and ceramic has no defects of previous composites and that a composite of aluminum and ceramic would eliminate defects of aluminum such as having poor heat resistance and heat insulating ability (col. 1, lines 5-55). Therefore, it would be obvious to have the housing that comprises a base plate to be of an aluminum and ceramic composite rather than aluminum, for the composite would have increased heat resisting and insulating properties.

As for **claim 21**, please refer to the rejections of **claim 6, 8, and 15** above.

***Response to Arguments***

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. As for the allowable subject matter previously cited, Examiner apologizes for the inconvenience but upon further consideration of the Mächler (4,709,989) reference in view of prior art cited and in view of prior art found by a further search a new rejection to the claims has been made.

***Fax/Telephone Numbers***

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306*

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

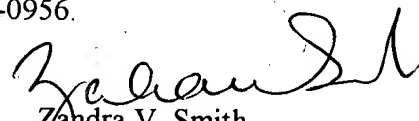
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

YD

gs

May 6, 2004

  
Zandra V. Smith  
Primary Examiner  
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